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## **CLAIMS:**

- A long half-life derivative of an OB protein retaining a biological property of a native OB **1**1. protein.
- The long half-life derivative of claim 1 capable of reducing body weight and/or food 2. 5 intake in an individual treated.
  - The derivative of claim 1 which is a derivative of a native human OB protein. 3.
  - The derivative of claim 1 which is an OB-immunoglobulin chimera. 4.
  - The derivative of claim 1 which is a native OB protein or an OB-immunoglobulin chimera 5. modified with a nonproteinaceous polymer.
  - The derivative of claim 4 wherein the nonproteinaceous polymer is polyethylene glycol 6. (PEG).
  - A composition for the treatment of a condition associated with the abnormal expression or 7. function of the OB gene, or for eliciting a biological response mediated by an OB receptor, comprising an effective amount of an OB derivative of claim
    - The composition of claim 7 effective for weight and/or appetite reduction. 8.
    - The composition of claim 7 effective in the reduction of elevated insulin levels. 9.
  - A method for the treatment of a condition associated with the abnormal expression or 10. function of the OB gene, or for eliciting a biological response mediated by an OB receptor, comprising administering to an individual to be treated a derivative of claim 1.
  - The method of claim 10 wherein the condition to be treated is selected from the group consisting of obesity, bulemia, and Type I of II diabetes.
  - A method for inducing weight loss or appetite loss is a subject, comprising administering to said subject an effective amount of a derivative of claim 1.
  - A chimeric polypeptide comprising an OB protein amino acid sequence capable of **√**13. binding to a native OB receptor, linked to an immunoglobulin sequence.
  - The chimeric polypeptide of claim 13 wherein said immunoglobulin sequence is a 14. constant domain sequence.
    - The chimeric polypeptide of claim 14 wherein said OB protein is human. 15.
- The chimeric polypeptide of claim 15 wherein two OB polypeptide-IgG heavy chain 16. fusions are linked to each other by at least one disulfide bond to yield a homodimeric immunoglobulin-like 30 structure.
  - The chimeric polypeptide of claim 16 wherein at least one of said OB polypeptide-IgG 17. heavy chain fusions is associated with an immunoglobulin light chain.
    - An isolated nycleic acid sequence encoding an OB protein-immunoglobulin fusion. **√**18.
    - A replicable expression vector comprising the nucleic acid of claim 18. 19.
    - A host cell transformed wih the replicable expression vector of claim 19. 20.
  - A process comprising culturing the host cells of claim 16 so as to express the nucleic acid 21. encoding an OB protein-immunoglobulin fusion.



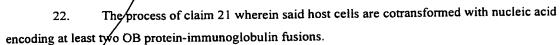


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- The process of claim 22 wherein said cells are further transformed with nucleic acid 23. encoding at least one immunoglobulin light chain.
- A method of treating a condition associated with the abnormal expression or function of the OB gene or for eliciting a biological response mediated by an OB receptor comprising administering to a patient a therapeutically effective amount of the chimeric polypeptide of claim 13.
- The method of claim wherein said condition is selected from the group consisting of 25. obesity, bulemia and type I or II diabetes.
- A composition for the treatment of obesity comprising an effective amount of a chimeric 26. polypeptide of claim 13 in association with a pharmaceutically acceptable carrier.
- A method for inducing the growth of cells expressing an OB receptor comprising 27. contacting said cells with the OB derivative of claim 1.

